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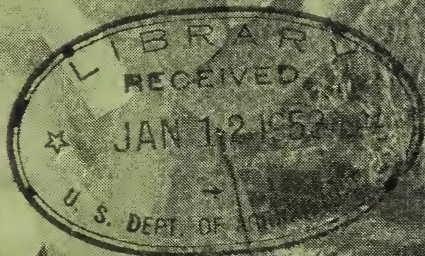
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# USE ACID

## For More Efficient Gum Production

1.9622  
S4Us2



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BOOK NUMBER 1.9622  
836179 S4Us2




## HOW THE USE OF ACID INCREASES GUM YIELDS PER STREAK AND RAISES LABOR EFFICIENCY


WITH REGULAR CHIPPING ON A WEEKLY SCHEDULE . . . . .

ONE CHIPPER  WILL USUALLY WORK      . . . .  
5000 FACES

AND PRODUCE






      
100 BARRELS OF GUM

 = 1000 FACES

 = 20 BBLs. OF GUM

EACH FACE USUALLY HAS 32 STREAKS PER SEASON

### ACID TREATMENT

WITH ACID ON A 2-WEEK SCHEDULE, THE SAME CHIPPER   
CAN CHIP AND TREAT          AND  
9000 FACES

PRODUCE

          
180 BARRELS OF GUM

EACH FACE WILL HAVE ONLY 16 STREAKS. YIELDS PER  
FACE WILL BE APPROXIMATELY THE SAME AS THE YIELDS  
FROM 32 UNTREATED STREAKS. CHIPPING ONLY EVERY 2  
WEEKS SAVES FACE HEIGHT.

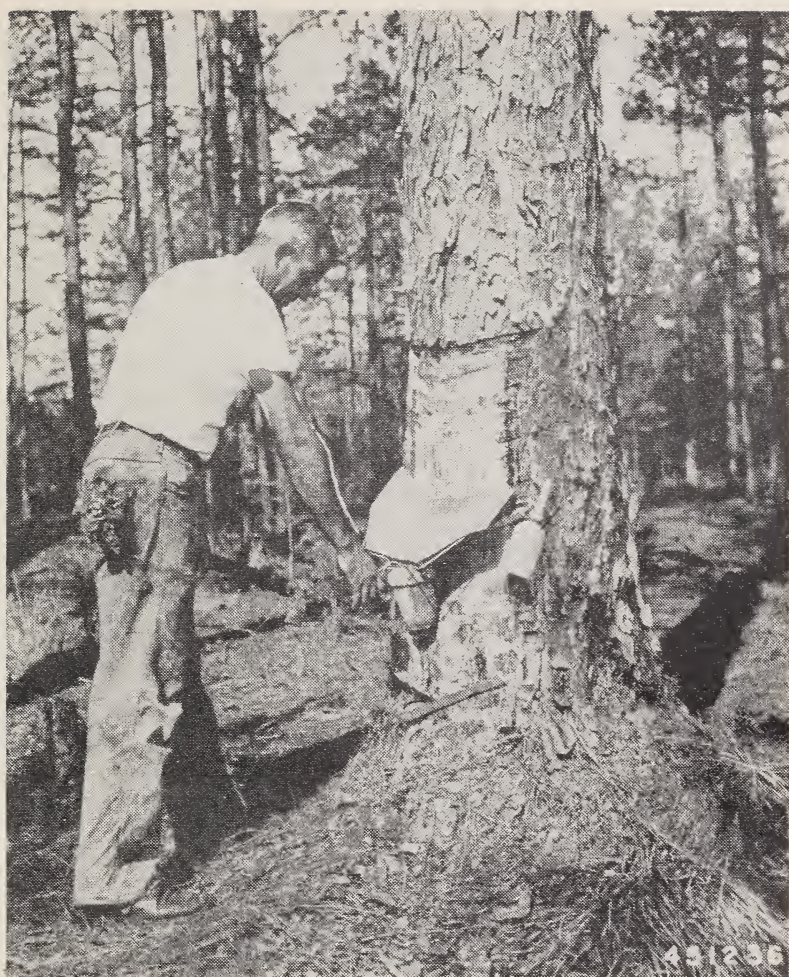


## BARK CHIPPING

WHEN ACID IS USED, CHIPPING MAY BE DONE WITH A BARK HACK. ONLY THE BARK SHOULD BE REMOVED. NEW CHIPPERS CAN BE TRAINED EASIER. OLD CHIPPERS WILL FIND THE WORK LESS TIRING.

ONE QUART OF ACID WILL TREAT ABOUT 1000 FACES





### APPLYING ACID

1. CHIPPER CARRIES HACK AND CUP COVER IN ONE HAND AND SPRAY GUN IN THE OTHER. WHEN REACHING FACE, THE SPRAY GUN IS HUNG ON THE CUP, OR GUTTER. DO NOT SET IT ON THE GROUND. THE CUP COVER IS PLACED TO PREVENT BARK, CHIPS AND ACID FROM FALLING ON TINS AND CUP.



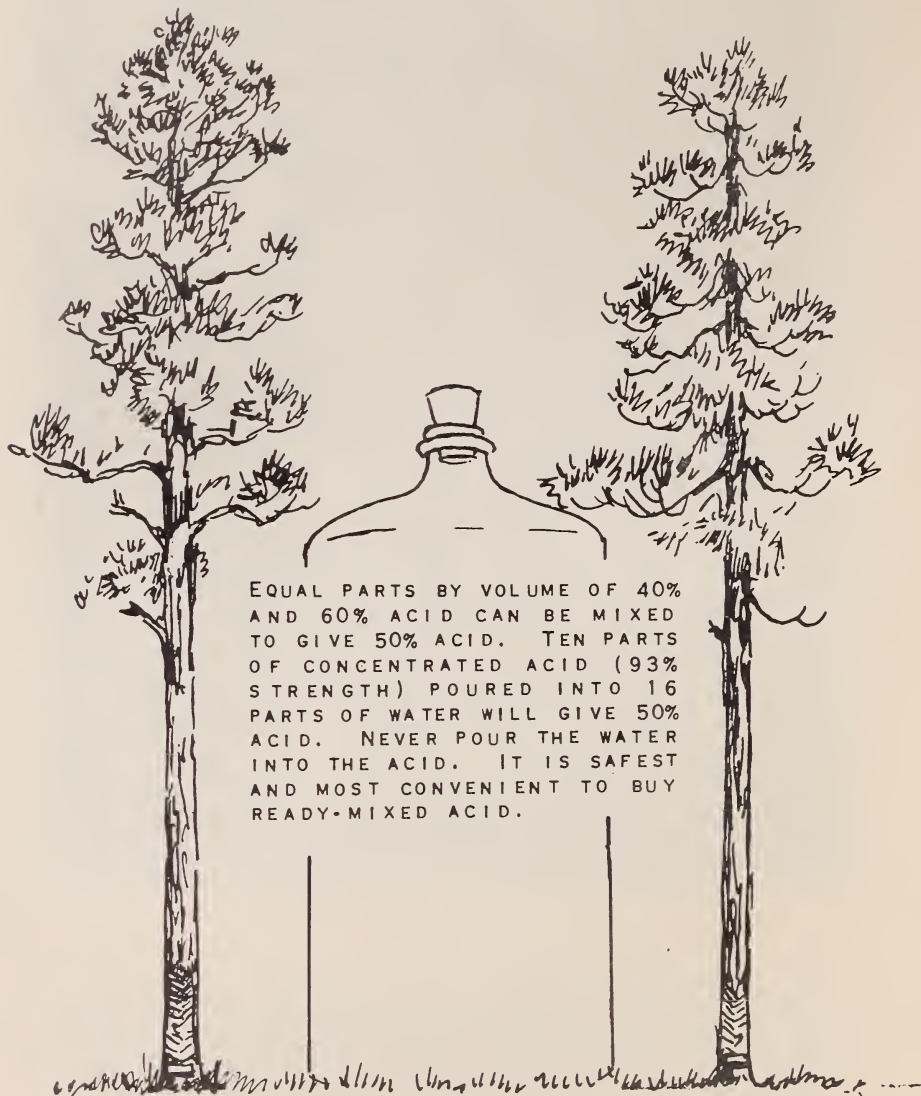
2. REMOVE ALL BARK DOWN TO THE WOOD. FIND THE PROPER ANGLE FOR HOLDING THE BARK HACK SO THAT IT DOES NOT DIG INTO THE WOOD OR RIDE OUT INTO THE BARK. SEE 'HINTS ON BARK HACKS ON PAGE 8 .





3. KEEP HACK IN ONE HAND WHILE SPRAYING. AIM SPRAYER AT LINE WHERE WOOD AND BARK MEET, AND PROCEED ACROSS STREAK WITH ONE EVEN MOTION. WEAR RUBBER GLOVE IF NECESSARY. SEE OTHER 'HINTS ON USE OF ACID' ON PAGE 8 .

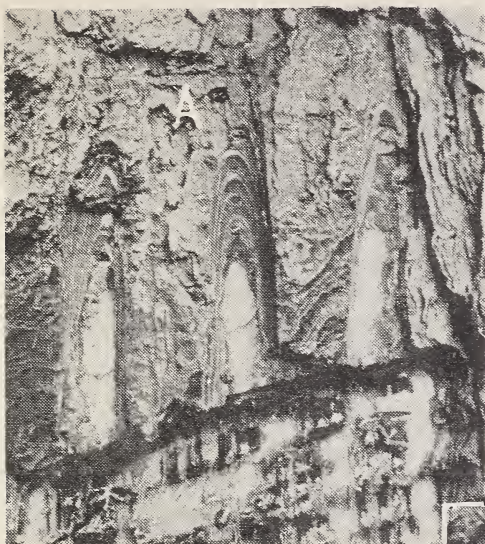
50% ACID CAN BE USED ON BOTH SLASH AND LONGLEAF PINE



EQUAL PARTS BY VOLUME OF 40% AND 60% ACID CAN BE MIXED TO GIVE 50% ACID. TEN PARTS OF CONCENTRATED ACID (93% STRENGTH) POURED INTO 16 PARTS OF WATER WILL GIVE 50% ACID. NEVER POUR THE WATER INTO THE ACID. IT IS SAFEST AND MOST CONVENIENT TO BUY READY-MIXED ACID.



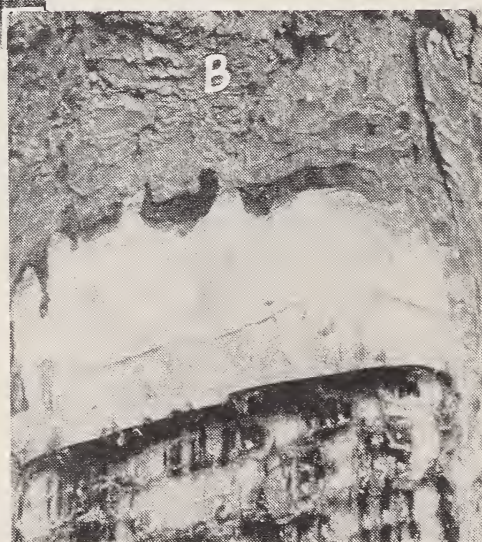
## CHECK YOUR TREES FOR GOOD TREATMENT



GOOD ACID TREATMENT WILL MAKE A RED COLOR IN THE INNER BARK AND THE OUTSIDE OF THE WOOD FOR A DISTANCE OF 1/2 TO 1 INCH ABOVE THE LAST STREAK. YOU CAN CHECK THIS DISTANCE BY MAKING 2 OR 3 SHORT CUTS UPWARD FROM THE TOP OF THE FACE.

### GOOD APPLICATION

FIGURE 1. APPEARANCE OF INNER BARK OF SLASH PINE SEVEN DAYS AFTER THOROUGH TREATMENT WITH SULPHURIC ACID: (A) AS VIEWED FROM VERTICAL HACK CUTS, AND (B) WITH OUTER BARK REMOVED FOR ENTIRE LENGTH OF STREAK. HEIGHT AND EVENNESS OF RED COLOR SHOW THAT ACID WAS APPLIED EVENLY AND IN PROPER AMOUNT TO ALL PARTS OF THE LAST STREAK.



IF THE RED COLOR GOES UP LESS THAN 1/2 INCH, TOO LITTLE ACID IS HITTING THE STREAK. BE MORE CAREFUL TO HIT THE LINE WHERE THE BARK AND WOOD MEET, OR USE MORE ACID BY GOING MORE SLOWLY ACROSS THE STREAK WHILE SPRAYING.

IF THE RED COLOR GOES UP MORE THAN 1 INCH, TOO MUCH ACID IS HITTING THE STREAK. USE LESS ACID BY GOING FASTER ACROSS THE STREAK WHEN SPRAYING.

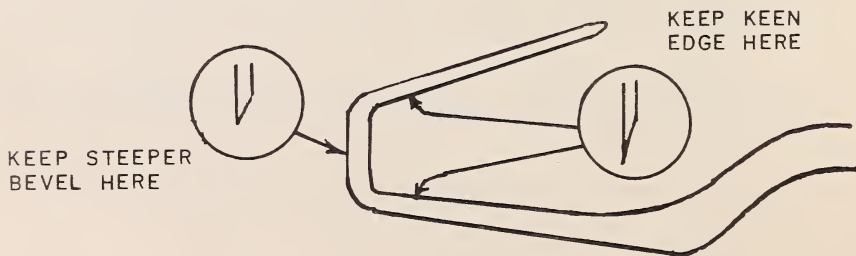


## HINTS ON USE OF ACID

1. DO NOT USE ACID ON LEAD STREAK. LEAD STREAK IS NOT NECESSARY WITH ACID TREATMENT.
2. WAIT UNTIL BUDS ON PINE TREES BEGIN TO GROW BEFORE STARTING ACID TREATMENT IN THE SPRING. EARLIER TREATMENT MAY CAUSE EXCESSIVE LIGHTERING.
3. SPRAY JUST ENOUGH ACID TO COVER THE STREAK COMPLETELY. BE SURE TO HIT THE TOP OF THE STREAK ALL OF THE WAY ACROSS. ONE QUART OF ACID SHOULD COVER ABOUT 1000 STREAKS.
4. AT END OF SEASON, CHIP OFF ACID-KILLED TISSUE ABOUT 2 WEEKS AFTER MAKING LAST ACID-TREATED STREAK.
5. DON'T USE ACID DURING THE WINTER.

## HINTS ON BARK HACKS

1. BARK HACKS ARE AVAILABLE IN 3 SIZES:  
D1 - 3/4 INCH - FOR CHIPPING EVERY 3 WEEKS ON LONG-LEAF PINE.  
D2 - 5/8 INCH)  
D3 - 1/2 INCH)  
)- FOR CHIPPING EVERY 2 WEEKS.
2. KEEP A KEEN EDGE ON THE SIDE BLADES, WHICH CUT THE BARK DURING CHIPPING. KEEP A THICK BEVEL ON THE FRONT BLADE SO THAT IT WILL NOT DIG INTO THE WOOD.
3. IN SHARPENING BARK HACKS, USE A TRIANGULAR SAW FILE RATHER THAN A CUTTER. KEEP THE CORNERS OF THE HACK SQUARE AND SHARP. SQUARE-CORNERED ROCKS ARE AVAILABLE FOR TOUCHING UP THE EDGE AND CORNERS.





FOR FURTHER INFORMATION, CONTACT  
THE FOLLOWING REPRESENTATIVE OF THE  
NAVAL STORES CONSERVATION PROGRAM  
OR THE COUNTY AGRICULTURAL AGENT.

CHEMICAL STIMULATION  
WILL INCREASE GUM YIELDS PER STREAK  
-  
INCREASE LABOR EFFICIENCY  
USE ACID



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PREPARED BY  
SOUTHEASTERN FOREST EXPERIMENT STATION  
AND  
SOUTHERN REGION  
2 U. S. FOREST SERVICE,  
DEPARTMENT OF AGRICULTURE